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## GAMMA RAY OBSERVATORY (GRO)

NC999967

(Emergency Support)

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LV/Range: STS/ETR

Launch Date: November 1, 1990

Projected SC Life/DSN Support: 2 years/2 years

Project Responsibility: Goddard Space Flight Center

Source: SIRD January 1983  
Sponsor: OSO

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### A. MISSION DESCRIPTION

The Gamma Ray Observatory (GRO) is an Earth orbiting satellite that studies sources of localized, galactic, and extragalactic gamma rays.

### B. FLIGHT PROFILE

The GRO satellite will be carried into a near-circular orbit by the STS shuttle. Following launch from the shuttle, it will be placed in its operational orbit by the on-board hydrazine propulsion system. Formal orbit parameters are 350 km x 450 km x 28.5 degrees with a period of 93 minutes.

## C. COVERAGE

## 1. Coverage Goals

DSN coverage for the GRO will be provided during emergencies that would prevent communications via the normal TDRSS-White Sands link. Emergency support will be provided by the DSN's 26-meter antenna subnetwork.

## 2. Network Support

The support provided by the DSN is indicated in the following table:

<u>System</u>	<u>Goldstone</u>	<u>Canberra</u>	<u>Madrid</u>
	12 14 15 16	42 43 45 46	61 63 66
S-band TLM	E	E	E
S-band CMD	E	E	E
S-band TRK	E	E	E

NOTE: E = Emergency

## D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

<u>System</u>	<u>Uplink (MHz)</u>	<u>Downlink (MHz)</u>	<u>Polarization</u>
S-band TLM	--	2287.5	TBD
S-band CMD	2106.4	--	TBD
S-band TRK	2106.4	2287.5	TBD

## E. SUPPORT PARAMETERS

The support parameters for the telemetry, command, and support systems are listed below:

## (1) Telemetry

Data Streams	2
Format	TBD
Subcarrier Frequency	32768 Hz
Bit Rates	1, 32, or 512 kb/s
Coding	TBD
Record	TBD

(2) Command

Format	PCM(NRZ-L) PSK/PM
Subcarrier Frequency	16 kHz
Bit Rate	125 G/s or 1 kb/s

(3) Support

Uplink Power	TBS
Antenna Rate	TBS
Antenna Angle Data	Required
Antenna Autotrack	Required
Doppler Rates	TBS
Range Format	TBS
Recording	
. Analog	
. Digital	

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